

## CLAIMS

1. A quantizer for use with a delta-sigma analog-to-digital converter, said quantizer comprising:

first and second comparators adapted to compare an input analog signal to a threshold and provide a digital output in response thereto;

5 means for providing first and second thresholds to said first and second comparators respectively; and

means for changing said first or said second threshold.

2. The invention of Claim 1 wherein said means for providing said first and second thresholds are first and second digital-to-analog converters, respectively.

3. The invention of Claim 2 wherein said means for changing said first or said second threshold is a logic circuit that provides a digital input for said first or said second digital-to-analog converter.

4. The invention of Claim 3 wherein said circuit is an error shaping circuit.

5. The invention of Claim 3 wherein said logic circuit is a digital-to-analog converter element selection logic circuit.

6. A delta-sigma analog-to-digital converter comprising:

first means for combining a feedback signal with a signal representative of an input signal to provide an intermediate signal;

5 second means for quantizing said intermediate signal and providing an output signal, said quantizer comprising:

first and second comparators adapted to compare said intermediate

signal to a threshold and provide a digital output in response thereto and

first and second digital-to-analog converters for providing first and second thresholds to said first and second comparators respectively;

10 third means for feeding said output signal back to said means for combining; and

fourth means responsive to said output signal for providing an input to said first and second digital-to-analog converters.

7. The invention of Claim 6 further including an integrator disposed between said first means and said second means.

8. The invention of Claim 6 further including a mutual transconductance for converting an analog input voltage to an analog output current to provide said signal representative of an input signal.

9. The invention of Claim 6 further including means associated with each comparator for storing the output thereof.

10. The invention of Claim 9 wherein said means for storing is a set of latches.

11. The invention of Claim 10 further including a current source and switch means, responsive to said latches for connecting said current source to an output terminal.

12. A quantization method for use with a delta-sigma analog-to-digital converter, said method comprising the steps of:

comparing an input analog signal to a threshold with first and second comparators to provide a digital output signal;

5 providing first and second thresholds to said first and second comparators respectively; and

selectively changing said first or said second threshold to minimize conversion error.

13. A method for analog-to-digital conversion including the steps of:

combining a feedback signal with a signal representative of an input signal to provide an intermediate signal;

- quantizing said intermediate signal and providing an output signal first and  
5 second comparators adapted to compare said intermediate signal to first and second thresholds and provide digital output signals in response thereto;

providing first and second thresholds to said first and second comparators via first and second digital-to-analog converters respectively; and

- providing an input to said first and second digital-to-analog converters in  
10 response to the output signals.